Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
Rural Health Care Support Mechanism	)	WC Docket No. 02-60

COMMENTS OF INMARSAT

Inmarsat, Inc. ("Inmarsat") submits these Comments in response to the Commission's *Notice of Proposed Rulemaking* on the Rural Health Care Support Mechanism released on July 15, 2010.[1] Inmarsat appreciates the opportunity to provide comments in this proceeding as part of the Commission's effort to implement the recommendations for rural health care contained in the National Broadband Plan (NBP).[2] As noted in the *Notice*, Inmarsat filed comments in the NBP comment process[3] and the Commission has incorporated those comments into this proceeding.[4] In addition to this proceeding, Inmarsat has previously participated in several related proceedings on its own and as a member of the Satellite Industry Association (SIA), the American Telemedicine Association, and the MSS/ATC Coalition.[5]

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[1] *In the Matter of Rural Health Care Support Mechanism, Notice of Proposed Rulemaking*, WC Docket 02-60 (rel. July 15, 2010) (*Notice*).

[2] Federal Communications Commission, *Connecting America: The National Broadband Plan* at 200 (rel. Mar. 16, 2010) (NBP or National Broadband Plan), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf.

[3] *See Comment Sought on Health Care Delivery Elements of National Broadband Plan, NBP Public Notice #17*, GN Docket Nos. 09-47, 09-51, 09-137, WC Docket No. 02-60, 24 FCC Rcd 13728 (2009) (*NBP Public Notice #17*).

[4] *Notice* at fn. 3.

[5] *See, e.g.*, Reply Comments of Inmarsat Inc., GN Docket Nos. 09-47, 51 and 137 (Nov. 13, 2009) (NBP Public Notice #6); Comments of Inmarsat Inc., GN Docket Nos. 09-47, 51 and 137, (Dec. 1, 2009) (NBP Public Notice #14); Comments of Inmarsat, Inc., GN Docket Nos. 09-47, 51 and 137, (Dec. 4, 2009)(NBP Public Notice #17); Comments of the Satellite Industry Association, GN Docket Nos. 09-47, 51 and 137, (Oct. 23, 2009)(NBP Public Notice #6); Reply Comments of the Satellite Industry Association, GN Docket Nos. 09-47, 51 and 137 (Nov. 13, 2009)(NBP Public Notice #6); Comments of the Satellite Industry Association, GN Docket Nos. 09-47, 51 and 137, (Nov. 4, 2009) (NBP Public Notice #11); Comments of the Satellite Industry Association, GN Docket Nos. 09-47, 51 and 137 (Dec. 4, 2009)(NBP Public Notice #23); Comments of the American Telemedicine Association, GN Docket Nos. 09-47, 51 and 137 (Sept. 30, 2009) (NBP Public Notice #11); Comments of the American Telemedicine Association, GN Dockets Nos. 09-47, 51 and 137 (Dec. 3, 2009);

The *Notice* seeks comment on several proposed reforms to the rural health care support mechanism consistent with the recommendations in the NBP with the goal of "expand[ing] the reach and use of broadband connectivity for and by public and non-profit health care providers.[6] Inmarsat applauds the Commission for recognizing the importance of delivery of advanced health care services throughout the country. As explained below, the Inmarsat mobile satellite service (MSS) network is being used in rural and extremely remote areas to extend cutting edge technologies via video, IP data, and voice communications, often when there is no other alternative available. One of the most important benefits of Inmarsat's network is that it can be used at a fixed location or on the move. The characteristics of Inmarsat's network provide health care providers with a unique tool to extend advanced services deeper into rural and remote areas.

As discussed in more detail below, Inmarsat is concerned, however, that some of the proposed policies and rules in the *Notice* could inadvertently prevent health care providers from taking full advantage of these advanced fixed and mobile technologies. Inmarsat submits these comments in an effort to explain to the Commission the potential benefits that its network can offer health care providers that require ubiquitous reliable communications, and to request that the policies and rules for the Health Broadband Services Program support access to communications such as those supported by Inmarsat's network.

I. Introduction

Inmarsat has provided satellite services for over 30 years. In response to aggressive, highly competitive market forces, Inmarsat has continued to invest in new technologies for the diverse customer base that utilizes mobile satellite services. Over the last several years, Inmarsat has invested well over $1.5 billion in the deployment of its fourth-generation,

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Comments of MSS/ATC Coalition, GN Docket Nos. 09-47, 51 and 137 (Aug. 31, 2009) (NBP Public Notice #1).

[6] *Notice* at ¶ 2.

Inmarsat 4 ("I-4") satellite network, which is today providing innovative and secure mobile satellite services to the United States and globally on one of the most advanced mobile commercial communications satellite constellations now in orbit. [7]

In order to remain competitive in the dynamic market for satellite services, Inmarsat's I-4 satellite fleet has been designed and adapted to support a new class of IP-based communications, including BGAN. Using highly portable and easily deployed "notebook sized" antennas that are one-third the size, weight, and price of traditional Inmarsat terminals, BGAN provides voice and broadband service at speeds of almost half a megabit per second. After plugging a BGAN terminal into a laptop computer with a USB cable (or using a built-in WiFi or Bluetooth connection), mobile users of all types have an immediate means of communication anywhere in the United States (and globally), including in hard-to-reach areas, or when the terrestrial network fails.[8] BGAN thus delivers significant public interest benefits both in rural areas (*e.g.*, by supporting medical imaging and other high-data-rate medical communications needs), and for purposes of disaster relief.[9]

In anticipation of and response to customer demand, Inmarsat has also launched companion BGAN services for aeronautical and maritime customers, known as SwiftBroadband and FleetBroadband, and continues to improve service for all its customers. For example, in 2009, responding to significant demand from broadcasters, Inmarsat announced the enhancement of land BGAN service by providing access to the world's fastest mobile video streaming by satellite.[10] As another example of Inmarsat's efforts to meet

[7] *See,* Inmarsat Press Release, Inmarsat Broadband Goes Global (Feb. 26, 2009) announcing completion of global coverage for Inmarsat broadband services.
[8] *See,* Exhibit A for a list of available Inmarsat land BGAN terminals.
[9] *See,* Inmarsat News, Gulf of Mexico Oil Spill: BGAN Plugs Comms Hole (June 11, 2010) announcing the use of BGAN to communicate vital geographic information system (GIS) data using partner ESRI's field data capture software to map oil barricades including sand levees and booms in remote locations along the Gulf Coast in cooperation with the National Guard, U.S. Coast Guard, and U.S. Fish and Wild Life Response Teams.
[10] *See,* Inmarsat News, BGAN X-Stream Delivers Fastest Video Streaming (Apr. 20, 2009) announcing launch of BGAN X-Stream service offering video streaming rates of up to 450kbps.

customers' demands, in June Inmarsat introduced world-wide Global Satellite Phone Service (GSPS) over its I-4 geostationary fleet with a modernized handset.[11]

More recently, Inmarsat announced the signing of a contract with Boeing for the delivery of three state-of-the-art Ka-band satellites that will be capable of delivering speeds of up to 50 Mbps to customers.[12] The new satellite constellation will provide a global high-speed broadband service, called *Global Xpress*. This next generation constellation will complement Inmarsat's existing global L-band services, allowing the company to offer unique hybrid packages using both networks, giving users unprecedented levels of resilience and reliability in remote and harsh environments.

II. Examples of Inmarsat BGAN Services Being Used or Tested for Rural Health Care

Inmarsat provides reliable and secure access to broadband information resources for health care providers in the United States and around the world, no matter whether they are on land, at sea or in the air.[13] In particular, Inmarsat's BGAN technology offers a unique solution for health care delivery, leveraging the capabilities of MSS across the national (and global) footprint of Inmarsat's satellites.[14] In addition, the BGAN network and user devices are designed to allow multiple, simultaneous users, including for telemedicine applications, to support parallel IP sessions to transmit diagnostic data while running a streaming IP session for live interactive video. Inmarsat and its partners are constantly investigating opportunities to expand the application of MSS technologies for use in healthcare settings.

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[11] *See*, Inmarsat News, Inmarsat Launches Its First Global Handheld, IsatPhone Pro (June 15, 2010) announcing rugged satellite phone with highly competitive pricing and performance.

[12] *See*, Inmarsat News, Inmarsat to Invest U.S. $1.2Bn in Ka-band Network (August 6, 2010).

[13] Applications include multi-channel, high-quality telephony, messaging, email, Internet and government network access, safety communications, large file transfer (still images, audio and video), videoconferencing, telemedicine, STU-III encrypted communications, and real-time air-ground collaboration.

[14] *See*, Exhibit B showing Inmarsat's three I-4 BGAN satellite footprints and spot beams for the United States and the rest of the world. The fact that Inmarsat's BGAN service is available around the world means that equipment purchased in the United States can also be taken and used anywhere in the world.

While Inmarsat's unique mobile satellite communications technology has only been available worldwide for a relatively short time, service providers and end users are actively exploring how best to use the technology for health care delivery. For example, BGAN technology is currently being deployed in: (i) 'mobile exam kits' designed to support field medicine in remote or disaster-affected areas, (ii) ambulances to facilitate lifesaving procedures in the field or "on the move;" (iii) mobile clinics to deliver primary and specialty care in rural communities; and (iv) hospices and homecare settings to provide access to electronic medical records and support.

Other potential uses are currently being developed and tested for mobile health clinics and rural homecare services. With respect to mobile health clinic applications, Inmarsat is partnering with health care providers and organizations to improve primary care services by investigating opportunities for: (i) portable or vehicular BGAN to help deliver basic healthcare services in underserved, rural or other hard-to-reach communities; (ii) basic voice and data connectivity for patient communications and online access to medical records; (iii) real-time transmission of diagnostic tests and live, interactive consultation with specialists and other medical staff; and (iv) location-based services to improve health care personnel security and time management.

BGAN is also an extremely valuable form of connectivity in time-critical, lifesaving emergency response situations. BGAN can facilitate seamless and ubiquitous mobile connectivity in ambulances as back-up to cellular data services in terrestrially covered areas, or as a primary form of connectivity in remote locations. Today, because ambulances are essentially mobile emergency rooms requiring reliable connectivity for monitoring diagnostics, real-time video consultation, and remote procedures, uninterrupted mobile broadband access is critical. BGAN also provides a fail over seamless solution for first

responders and health care professionals when cellular networks are out of reach because of geography or unavailability.

BGAN is also being evaluated as a backhaul link for portable telemedicine response kits. These kits, which can be easily deployed for emergency response, disaster relief, or search and rescue, consist of portable examination kits that permit transmission of diagnostic data to fixed sites for higher level evaluation. Kits can also include voice and video capabilities allowing live, real-time support for emergency treatment. In many situations, enhanced field care minimizes the need for medical evacuations and, ultimately, costs.

All of the capabilities identified above make Inmarsat's BGAN technology an effective solution for health care delivery across the nation, especially in rural and remote communities, because of the national (and global) footprint of Inmarsat's satellites. Inmarsat and its partners are constantly investigating opportunities to bring our unique mobile broadband communications technology to the users that can put it to the best use.

III. The Health Broadband Services Program Should Support Access to Ubiquitous Mobile Satellite Services by Health Care Providers

Inmarsat is concerned that some of the proposed policies and rules in the *Notice* could inadvertently prevent health care providers from receiving support for accessing certain critical advanced fixed and mobile technologies, thereby eliminating a valuable alternative for providing high quality health care to citizens in rural and remote areas when no other reliable alternative exists. Inmarsat believes that there are two proposed rules and their associated policies that could fall into this category unless the Commission takes steps to avoid the potential inhibiting aspect of the rules. We describe each of these proposed rules below along with the possible unintended consequences, and propose potential solutions to ensure that the Inmarsat network and other similar mobile services are available to rural health care providers under the Health Care Broadband Services Program, consistent with the public interest.

A. Minimum Speed (Proposed §§54.602(e), 54.631(e))

In the *Notice*, the Commission seeks comment on a proposal to create a minimum funding eligibility speed for broadband delivered health care services in the Health Care Broadband Services Program. The stated goal of using this type of benchmark speed is to be able to provide health care providers with the ability to "post their own data, interact with stored data, generate new data, or communicate over private dedicated networks or the public Internet for the provision of health IT."[15] In the *Notice*, the Commission proposes a speed of 4 Mbps downstream for solo practitioners and higher speeds for larger clinics and other medical facilities.[16] While these speeds are feasible for some terrestrial wireline communications networks, they are not currently offered for most wireless or satellite services, especially for mobile offerings.

The proposed rule is stated as follows, "[f]or purposes of the health broadband services program, "minimum broadband speed" means 4 Mbps." Inmarsat certainly understands the need to strive for the highest speeds possible in order to accommodate current and future requirements of health care providers. In those situations, however, where satellite-delivered solutions would be the best overall solution (considering both medical requirements and cost efficiency), such as extremely remote locations or when a medical facility is in motion, Inmarsat's BGAN service would provide an effective solution for health care providers. As explained above, Inmarsat's network can provide speeds up to approximately .5 Mbps to a small antenna on an ambulance, a mobile clinic, or hospice/homecare facility capable of meeting the Commission's goals of allowing for posting or interacting with data, generation of new data, and communication over public or private networks.

[15] *Notice* at ¶ 96.
[16] *Notice* at ¶ 97.

Therefore, we ask that the proposed rule be modified to provide an explicit process for health care providers to apply for funding to cover equipment and service costs of communications technologies like Inmarsat's BGAN when it is the best communications service available to meet health care providers' requirements, such as when reliable remote communications are needed in remote areas, or for medical vehicles on the move.

B. Restrictions on Satellite Services (Proposed §54.639)

The Commission also proposes to require that a health care provider seeking support for satellite service demonstrate that it is *the* most cost-effective option available to meet the provider's health care needs. [17] The *Notice* proposes to incorporate the current restrictions on the use of satellite services under the telecommunications program into the Health Care Broadband Services Program, which would not prohibit the use of satellite services if terrestrial services are available, but would cap the amount available for discount at the equivalent cost of terrestrial services. [18]

Inmarsat submits that this proposal is based on an out-dated understanding of the costs and benefits of satellite-delivered services, and imposes a discriminatory burden on satellite services that could prevent health care providers from gaining access to communications solutions that best meet their needs. Inmarsat understands the need for the Commission to encourage health care providers to seek communications solutions that are cost effective. But health care providers should not be asked to choose a more cost effective solution when another solution exists that might be far better positioned to meet the defined requirements, albeit at a higher cost. Indeed, solutions that might by some measures appear to be higher cost could in fact result in significant cost savings. For example, a satellite-delivered signal from an ambulance en route from a remote location could facilitate medical care that diagnoses a patient's condition earlier than would otherwise be the case, potentially

[17] *Notice* at ¶ 103.
[18] *Id.*

resulting in faster actions that could result in significant cost savings. Reliable communications are such an essential component of effective medical care that it would not make sense to undermine the goals of the program with a "penny-wise but pound foolish" approach.

Inmarsat thus encourages the Commission to eliminate this special requirement for satellite services. At a minimum, the Commission should modify the proposed rule to clarify that it applies only when there is a comparable reliable terrestrial service for the health care provider's specific proposed application, and does not apply when there are no reliable terrestrial alternatives to meet the health care provider's specific proposed requirement.

IV. Conclusion and Recommendations

As described above, Inmarsat today provides reliable and secure access to broadband information resources for health care providers in the United States and around the world, no matter whether they are on land, at sea or in the air. On all these platforms Inmarsat mobile satellite service offers secure communications to permit communications via email, Internet, file transfers, video streaming and videoconferencing**.** All of the capabilities identified above make Inmarsat's BGAN technology an efficient solution for ubiquitous health care delivery across the nation, and particularly in rural areas or in mobile settings where there are no reliable terrestrial alternatives.

Inmarsat requests that the Commission recognize that mobile satellite-provided broadband solutions, such as BGAN, can play an important role in serving critical health care delivery. In order to encourage adoption of mobile satellite-delivered services as part of the broadband "toolkit," Inmarsat urges that the Commission adopt final rules that encompass the following policies:

- Eligibility: Satellite services should routinely be considered as a cost-effective means of delivering fixed and mobile broadband reliably and ubiquitously in hard-to-reach areas, compared to building out terrestrial wireless or wired infrastructure. This

approach would help ensure that broadband is delivered to unserved and underserved users quickly and cost-efficiently.

- No Satellite-focused Funding Restrictions: The Health Broadband Services Program should encourage meaningful consideration of satellite-delivered broadband in circumstances where a satellite solution would be the most effective solution, for example in serving hard-to-reach areas or on mobile platforms. There should not be a separate constraint targeted on one technology.

For these reasons, Inmarsat respectfully requests that the Commission consider the above comments as it develops its broadband strategy.

Respectfully submitted,

/s/
Christopher J. Murphy
Senior Director, Government Affairs
INMARSAT, INC.
1101 Connecticut Avenue, N.W.
Suite 1200
Washington, D.C. 20036
Telephone: (202) 248-5158

/s/
Diane J. Cornell
Vice President, Government Affairs
INMARSAT, INC.
1101 Connecticut Avenue, N.W.
Suite 1200
Washington, D.C. 20036
Telephone: (202) 248-5155

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Exhibit A

Inmarsat BGAN User Terminals

BGAN terminals

A quick reference guide

inmarsat

Inmarsat's Broadband Global Area Network service – BGAN – is accessible via a small, lightweight, satellite terminal, which is quick to set up and easy to use. And you can use the same device worldwide.

A range of terminals is available, providing performance options to suit different operational needs. The service is accessed via BGAN LaunchPad, a software interface, which is standard across all terminals.

Standard terminals	 **Wideye™ Sabre™ I** Voice and data, single-user device	 **EXPLORER® 110** Smallest, lightest device in the range	 **EXPLORER® 300** Highly compact, robust device	 **EXPLORER® 500** High bandwidth, highly portable device	 **HNS 9201** High performance, multi-user device	 **EXPLORER® 700** Multi-user device with extensive functionality
Manufacturer:	Addvalue Communications www.wideye.com.sg	Thrane & Thrane www.thrane.com	Thrane & Thrane www.thrane.com	Thrane & Thrane www.thrane.com	Hughes Network Systems www.hns.com	Thrane & Thrane www.thrane.com
Size:	259 x 195mm (1.6kgs)	200 x 150mm (<1kg)	217 x 168mm (1.4kgs)	217 x 217mm (<1.5kgs)	345 x 275mm (2.8kgs)	297 x 399mm (3.2kgs)
Standard IP:	Up to 240/384kbps (send/receive)	Up to 240/384kbps (send/receive)	Up to 240/384kbps (send/receive)	Up to 448/464kbps (send/receive)	Up to 492kbps (send & receive)	Up to 492kbps (send & receive)
Streaming IP:	32, 64kbps (send & receive)	32, 64kbps	32, 64kbps	32, 64, 128kbps	32, 64, 128, 256kbps	32, 64, 128, 256kbps
ISDN:	N/A	N/A	N/A	1 x 64kbps via USB only	1 x 64kbps	2 x 64kbps
Voice:	Via RJ-11 or Bluetooth handset/headset	Via RJ-45 ISDN handset, Bluetooth handset	Via RJ-11 or Bluetooth	Via RJ-11 or Bluetooth handset; 3.1 kHz audio	Via RJ-45 ISDN handset, RJ-11; 3.1kHz audio	Via RJ-11 (x2), Bluetooth handset; 3.1kHz audio
Data interfaces:	Bluetooth, Ethernet – static and dynamic IP addressing	USB (with adapter), Bluetooth, Ethernet – static and dynamic IP addressing	Bluetooth, Ethernet	USB, Bluetooth, Ethernet	USB, Ethernet, WLAN 802.11b	USB, Ethernet (x2), Bluetooth, WLAN 802.11g, Digital I/O
Ingress protection:	IP 54	IP 44	IP 54	IP 54	IP 55	IP 52 (terminal), IP 66 (antenna)

Broadband for a mobile planet™

Vehicular terminals

	EXPLORER® 527 Multi-user, trackable antenna	HNS 9250 Multi-user, trackable antenna
Manufacturer:	Thrane & Thrane www.thrane.com	Hughes Network Systems www.hns.com
Size:	Terminal 403 x 483mm (5kgs) Antenna 500 x 150mm (5kgs)	Terminal 275 x 345mm (2.8kgs) Antenna 477 x 153mm (5.5kgs)
Standard IP:	Up to 448 / 464kbps (send / receive)	Up to 464kbps (send / receive)
Streaming IP:	32, 64, 128kbps (send & receive)	32, 64, 128, 256kbps (send & receive)
ISDN:	N/A	1 x 64kbps
Voice:	3.1kHz, 2-wire phone/fax	3.1kHz via ISDN handset
Data interfaces:	Bluetooth, Ethernet	Ethernet, ISDN, WLAN 802.11b
Ingress protection:	IP 56 antenna	IP 56 antenna

How to buy BGAN

BGAN is available through Inmarsat distribution partners and service providers in more than 80 countries. Visit our website to find the right partner for your organisation.

inmarsat.com/bganterminals

Exhibit B

Inmarsat I-4 Satellite Footprints